

CLAIMS

1. A method for operating a memory cell in an integrated circuit, the memory cell comprising a p-type well region in a semiconductor substrate, a first n-type region and a second n-type region formed in the p-type well region, an oxide layer formed over a channel region in the p-type well region between the first n-type region and the second n-type region, a polysilicon layer formed over the oxide layer, and a metal silicide layer formed over the doped polysilicon layer, the polysilicon layer comprising a fusible section formed over the channel region, a first contact pad and a second contact pad formed on either side of the fusible section, the method comprising the steps of:

programming the memory cell by applying a programming voltage across the metal silicide layer to heat the channel region and cause dopant segregation;
and

reading the memory cell.

2. The method of Claim 1, wherein the memory cell is configured to operate between an upper supply voltage and a lower supply voltage, the step of programming comprising the steps of:

applying a first voltage to the first contact pad;
applying a second voltage to the second contact pad, wherein the difference between the first voltage and the second voltage is substantially equal to the programming voltage; and

maintaining the first voltage and the second voltage until agglomeration of the fusible section occurs.

3. The method of Claim 2, wherein the programming voltage is less than or equal to the difference between the upper supply voltage and the lower supply voltage.

4. The method of Claim 1, wherein the memory cell is configured to operate between an upper supply voltage and a lower supply voltage, the step of reading comprising the steps of:

coupling the upper supply voltage to the first n-type region;

coupling the lower supply voltage to the second n-type region, the p-type well, the first contact pad, and the second contact pad; and

indicating a programmed state if current flow is detected between the first n-type region and the second n-type region.